

FIG. 1A

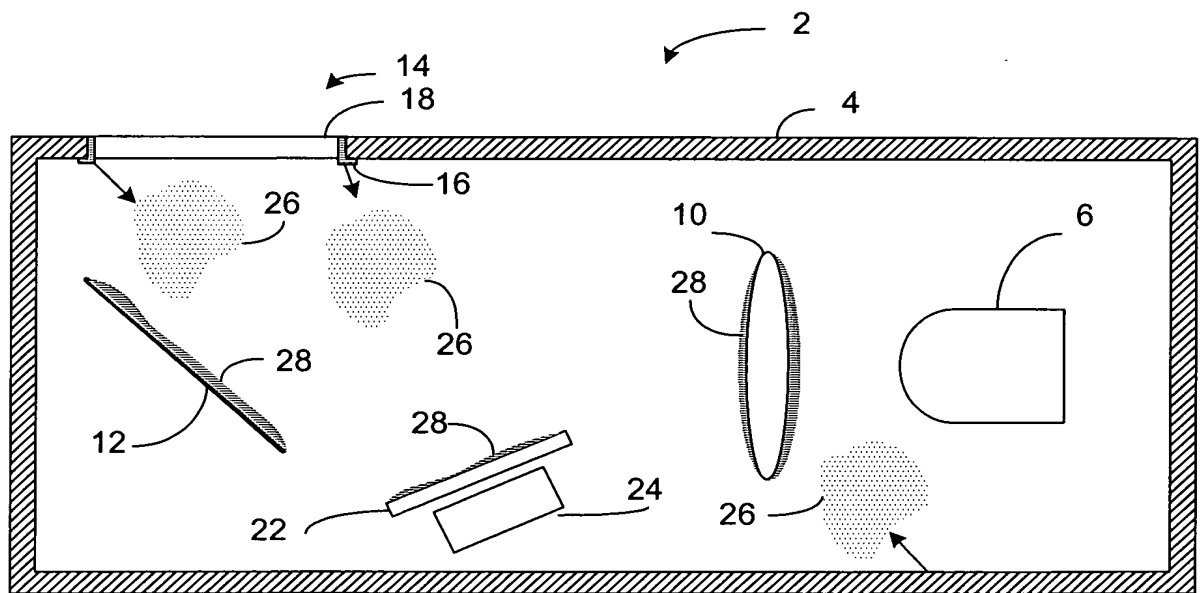


FIG. 1B

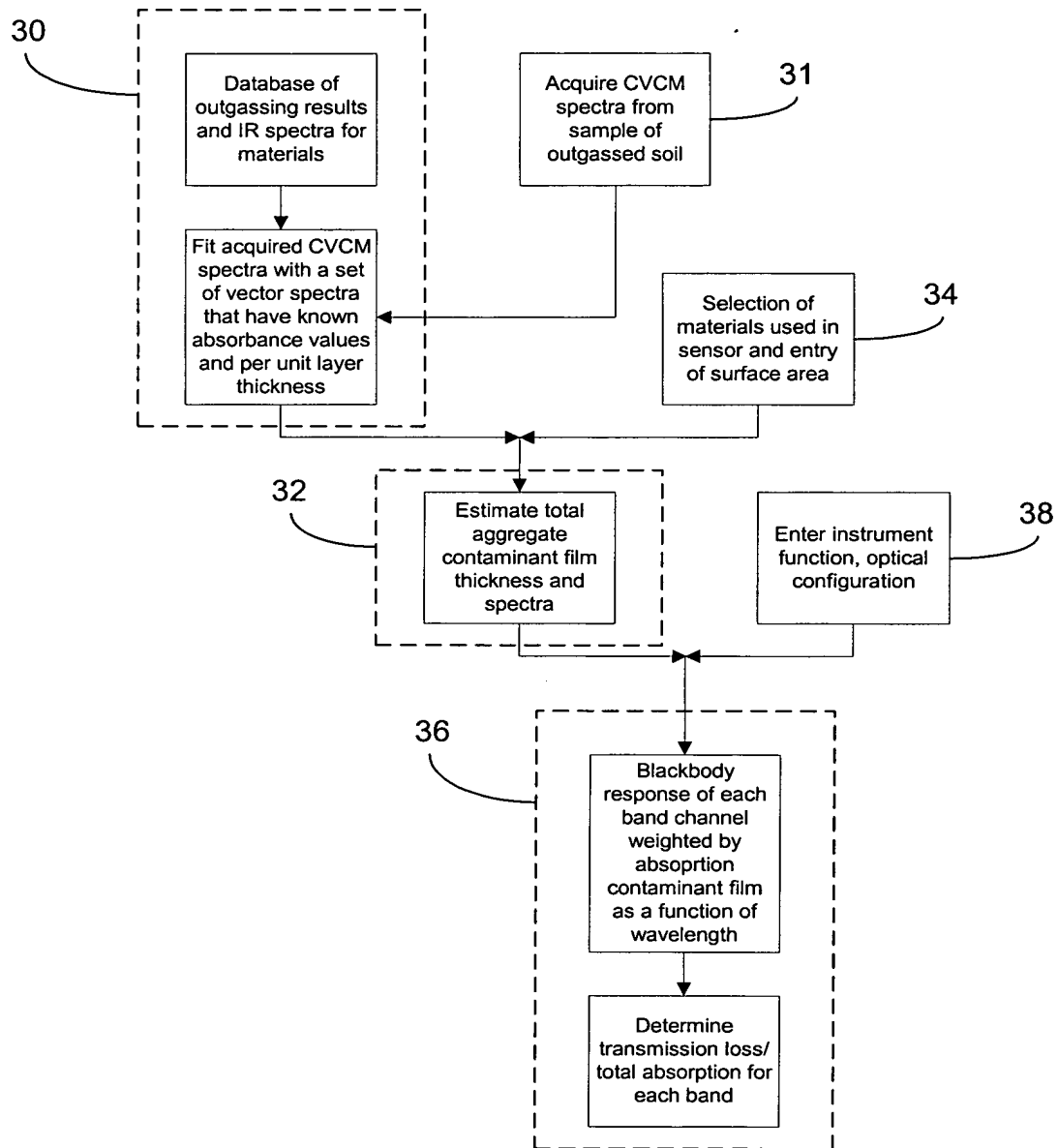
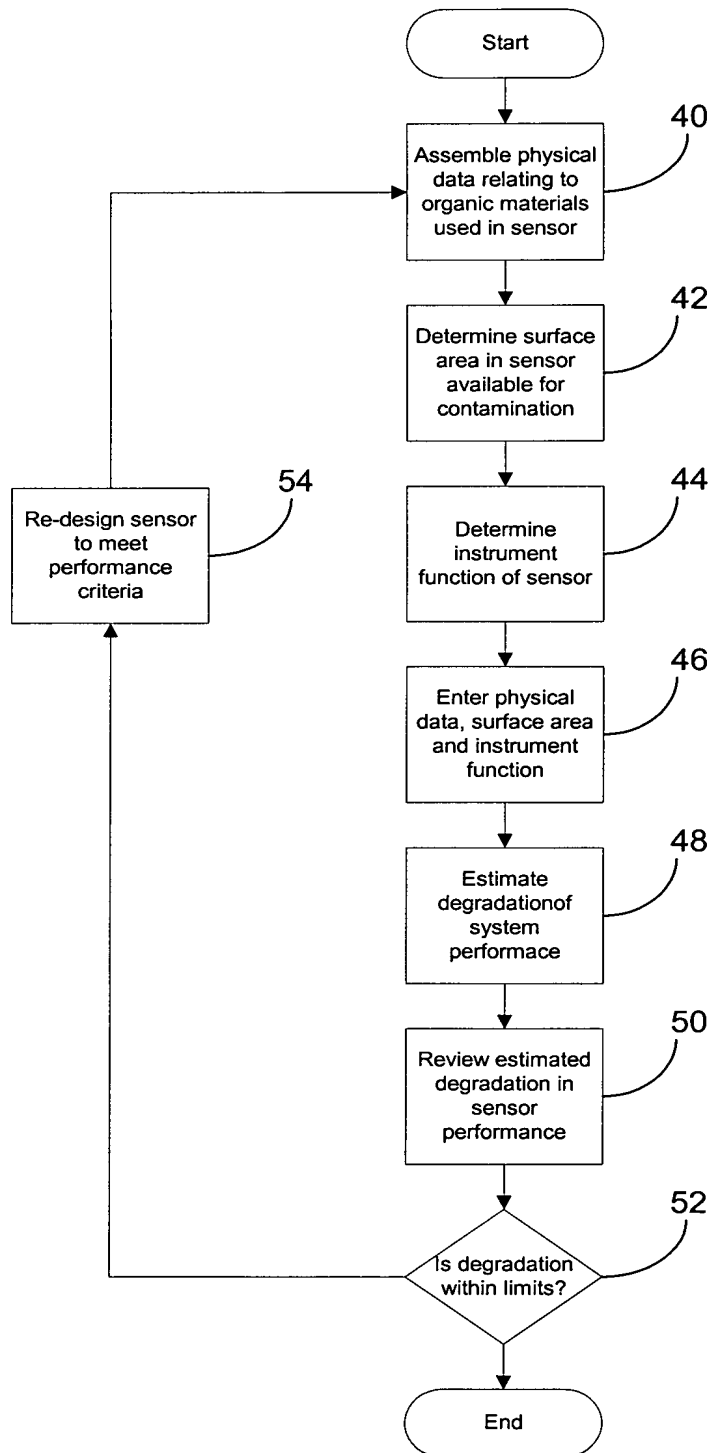


FIG. 2A

**FIG. 2B**

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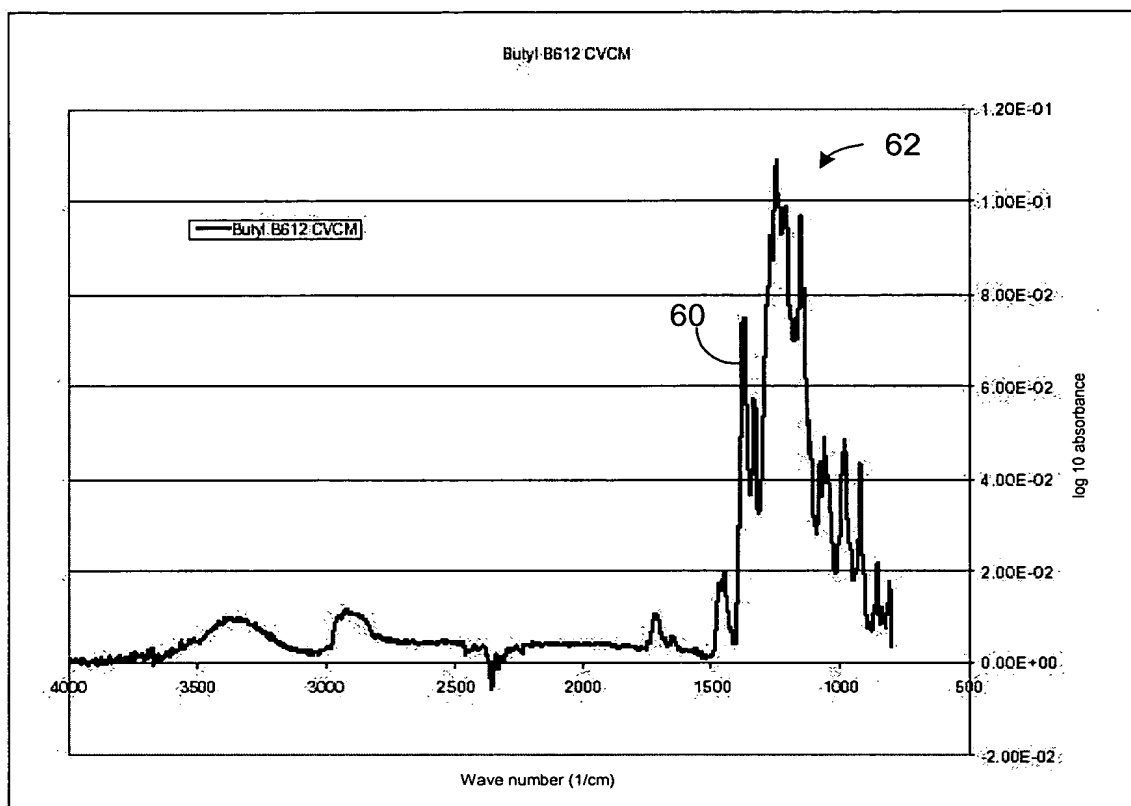


FIG. 3

Spectral comparison  
Outgassing products from Butyl O-Rings to Perfluorinated oil

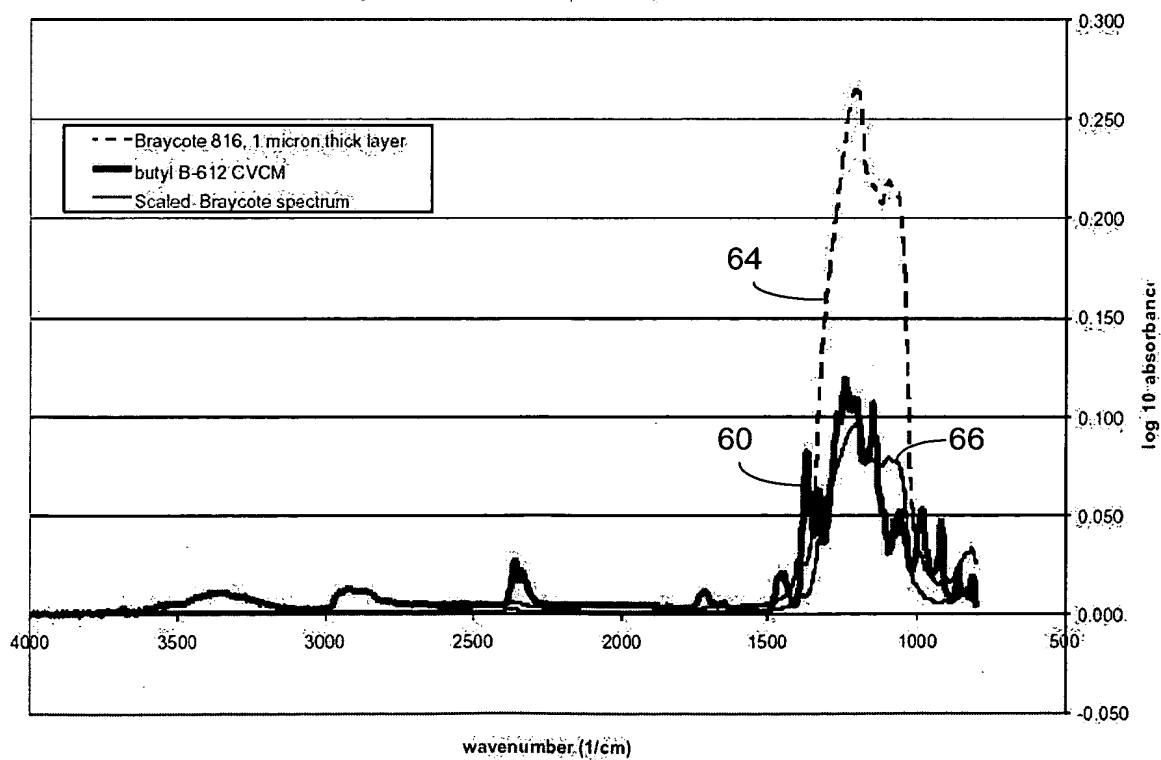


FIG. 4

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Synthetic spectrum - Uralane

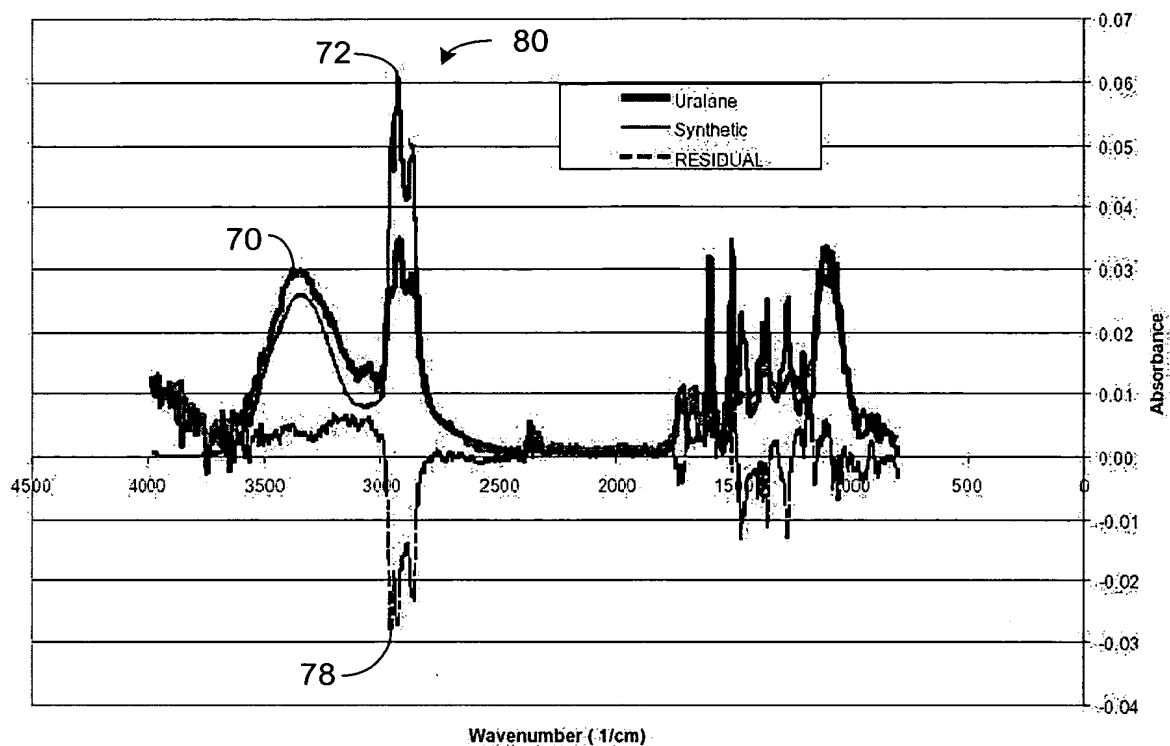


FIG. 5

Vector	thickness (microns)	Class of contaminant
N,N-diethylaniline	0.30	Aromatic amine
polyethyleneglycol	0.40	polyether
1-pentanol	0.30	Aliphatic alcohol
dioctylphthalate	0.05	Aromatic ester
dioctyl sebecate	0.05	Aliphatic ester
Octanoic acid	0.05	Aliphatic carboxylic acid
n-nonane	0.00	Aliphatic hydrocarbon
Total thickness	1.15	

FIG. 6

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Synthetic spectrum - Uralane  
compensation of C-H using n-nonane vector

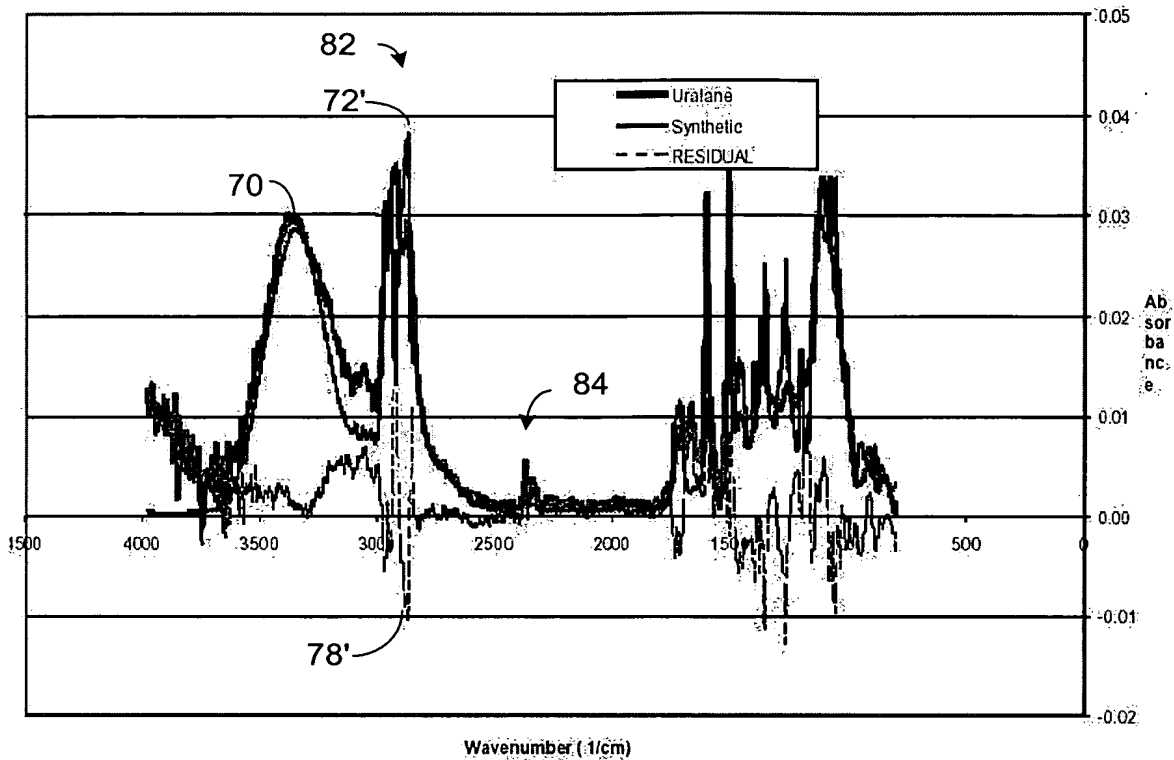


FIG. 7

Vector	Applied thickness	Density	Density weighted thickness A
	(microns)	(g cm <sup>-3</sup> )	(micron g cm <sup>-3</sup> )
N,N-diethylaniline	.30	0.94	0.282
Polyethylene glycol	.40	1.1	0.440
1-pentanol	.35	0.81	0.284
dioctyl phthalate	.05	0.97	0.048
dioctyl sebecate	.05	0.91	0.046
Octanoic acid	.05	0.91	0.046
n-nonane	-0.50	0.72	-0.360
sum	0.70	6.36	0.79
Equivalent thickness	0.70 (micron)	N/A	0.87 (micron)

FIG. 8

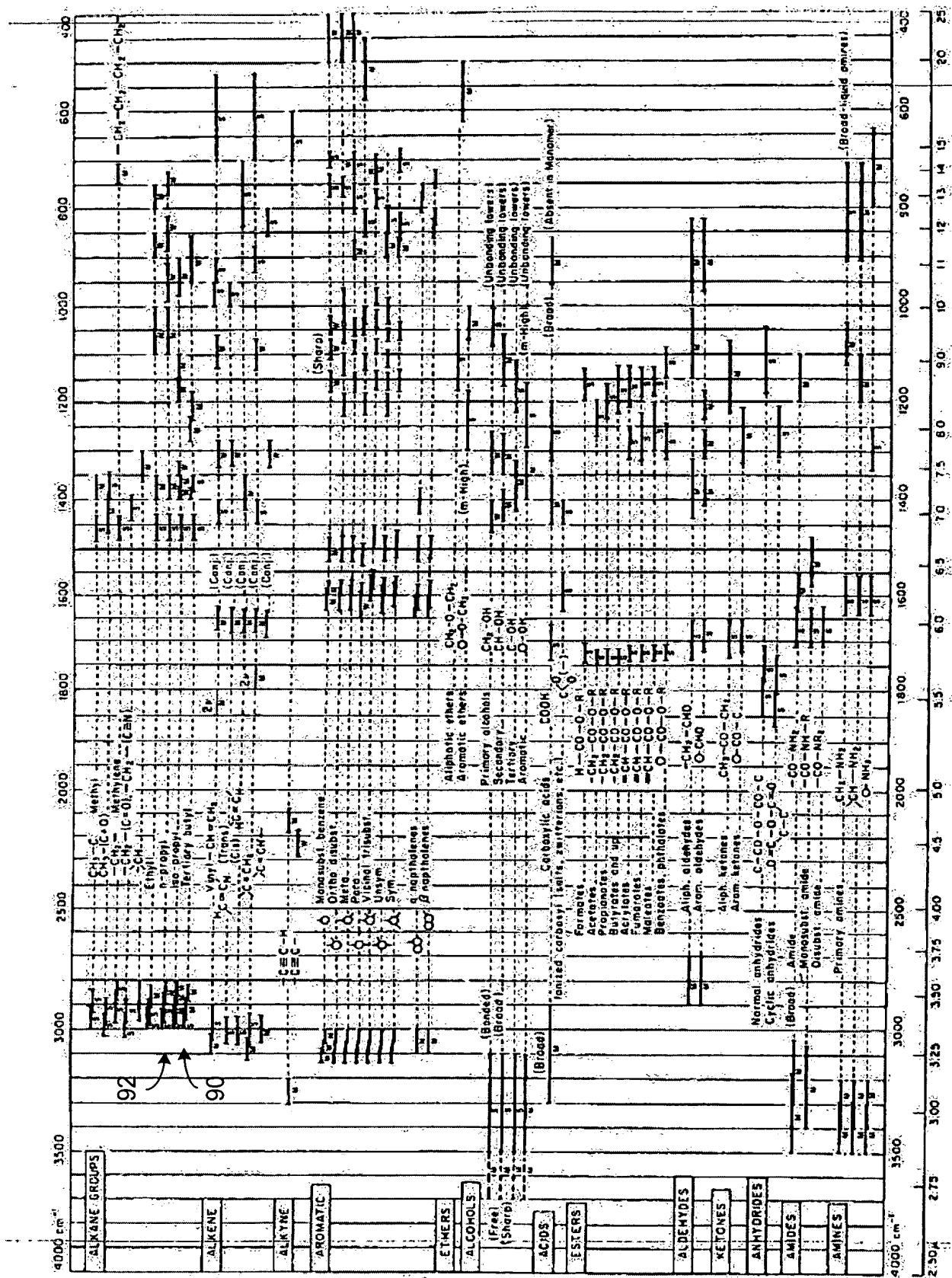
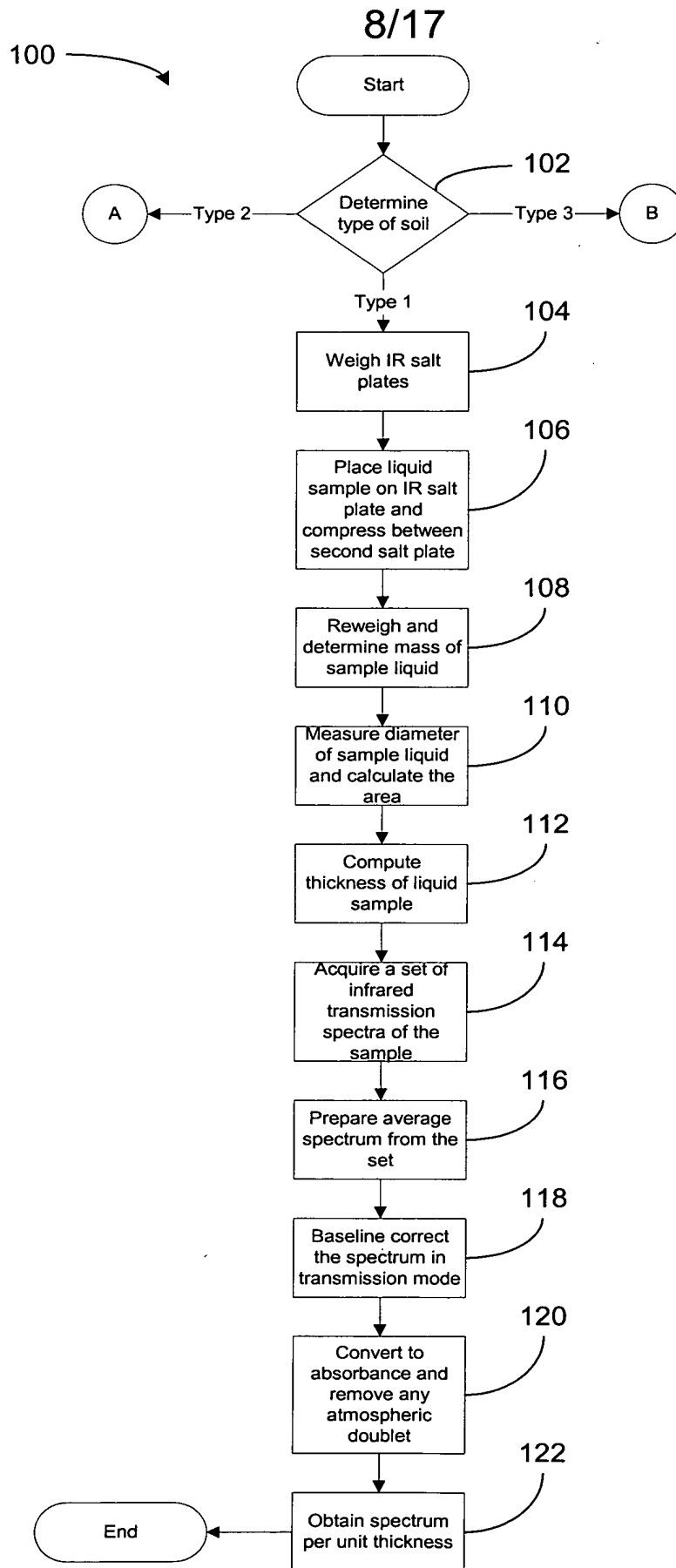


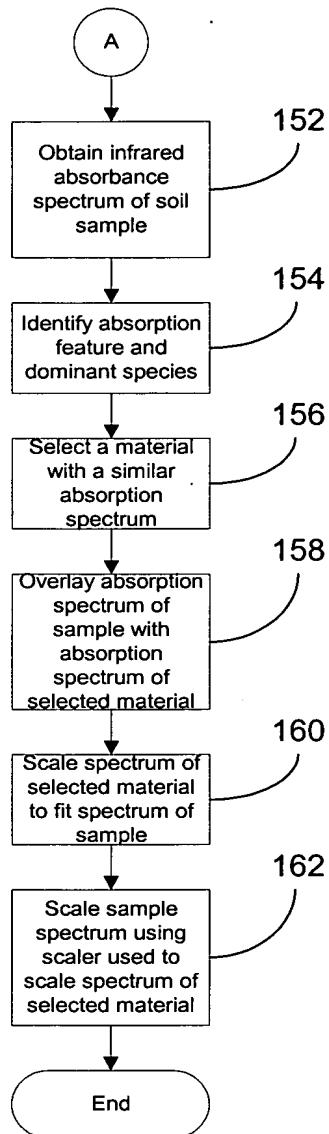
FIG. 9



**FIG. 10A**



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**FIG. 10B**

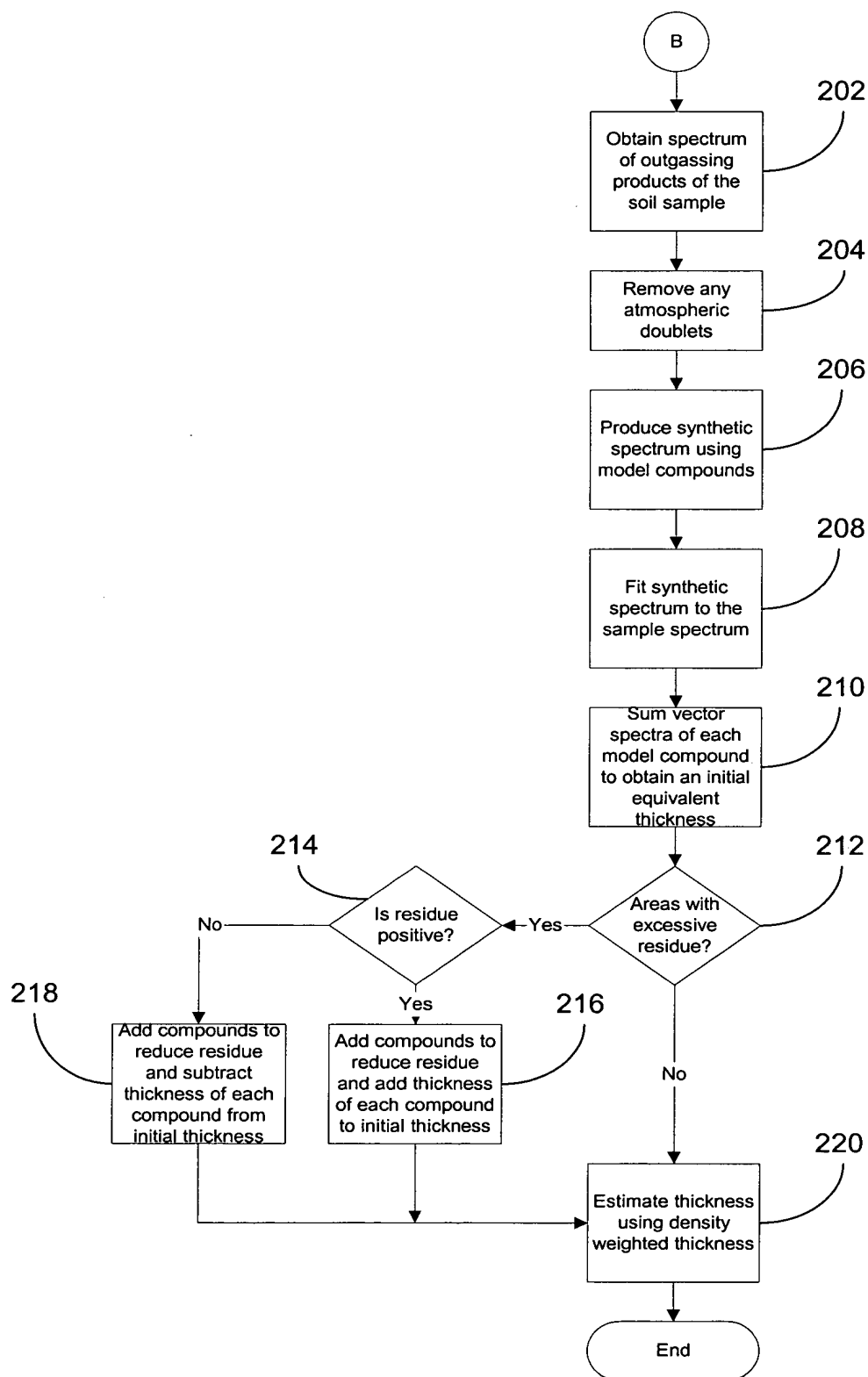
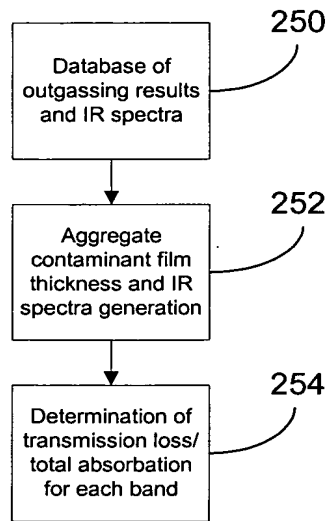
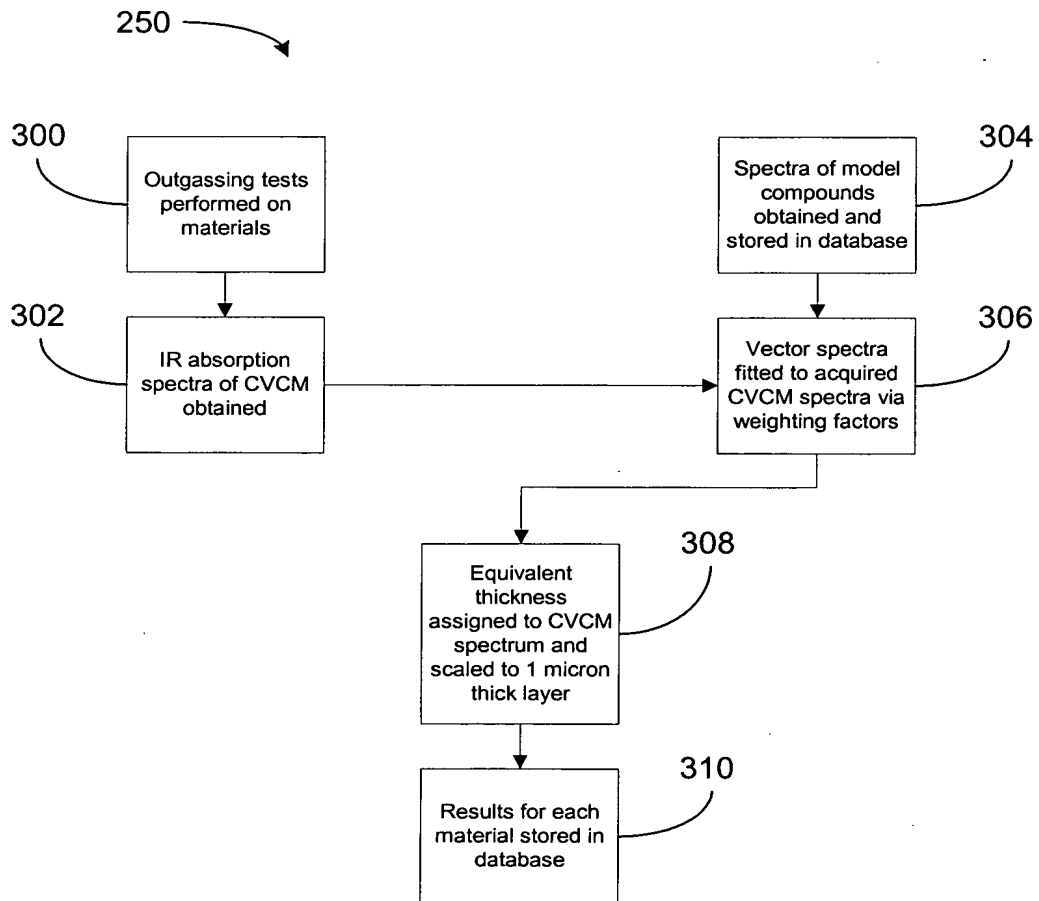


FIG. 10C

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**FIG. 11**



**FIG. 12**

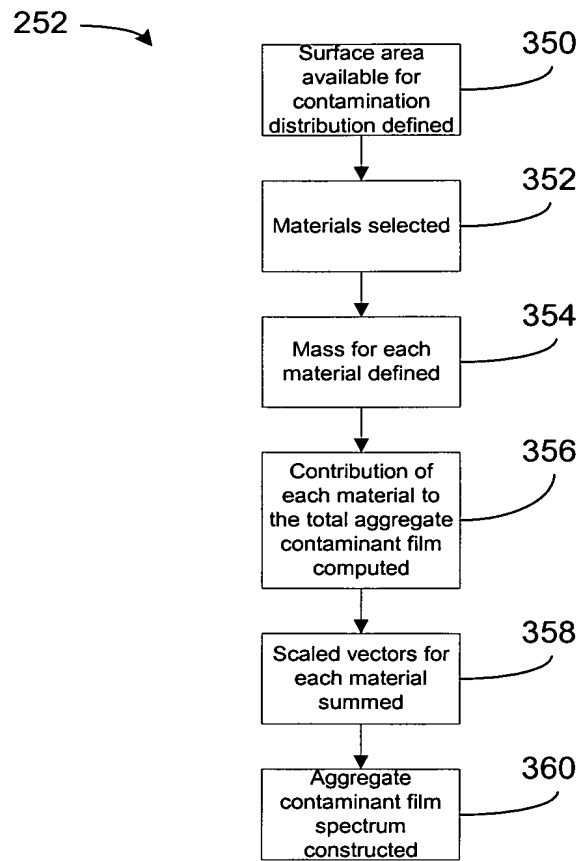
320

322 324 326

Model Compounds	Outgassing results	IR Spectra data
Diocetyl Phthalate	OR1	SD1
Diocetyl Sebcate	OR2	SD2
• • •	• • •	• • •
Compound n	ORn	SDn

328 330 332

**FIG. 13**

**FIG. 14**

Soil	370 →	372 →	374 →	376 →	378 →	380 →
	Volume Of material (cm <sup>3</sup> )	Density Of material (g cm <sup>-3</sup> )	CVCM Of material (% m/m)	Density of CVCM (g cm <sup>-3</sup> )	Estimated volume of CVCM / NVR (cm <sup>3</sup> )	Estimated thickness Of CVCM/ NVR (nm)
<i>outgassing</i> <b>Adhesive 1</b> <b>Polymer A</b>	2.5	1.0	0.05	1.0	$1.2 \times 10^{-3}$	1.5
	60	1.5	0.005	1.0	$4.5 \times 10^{-3}$	5.6
<i>NVR</i> <b>Hydrocarbon</b>	0.080	1.0	1.00	1.0	$8.0 \times 10^{-2}$	100

FIG. 15

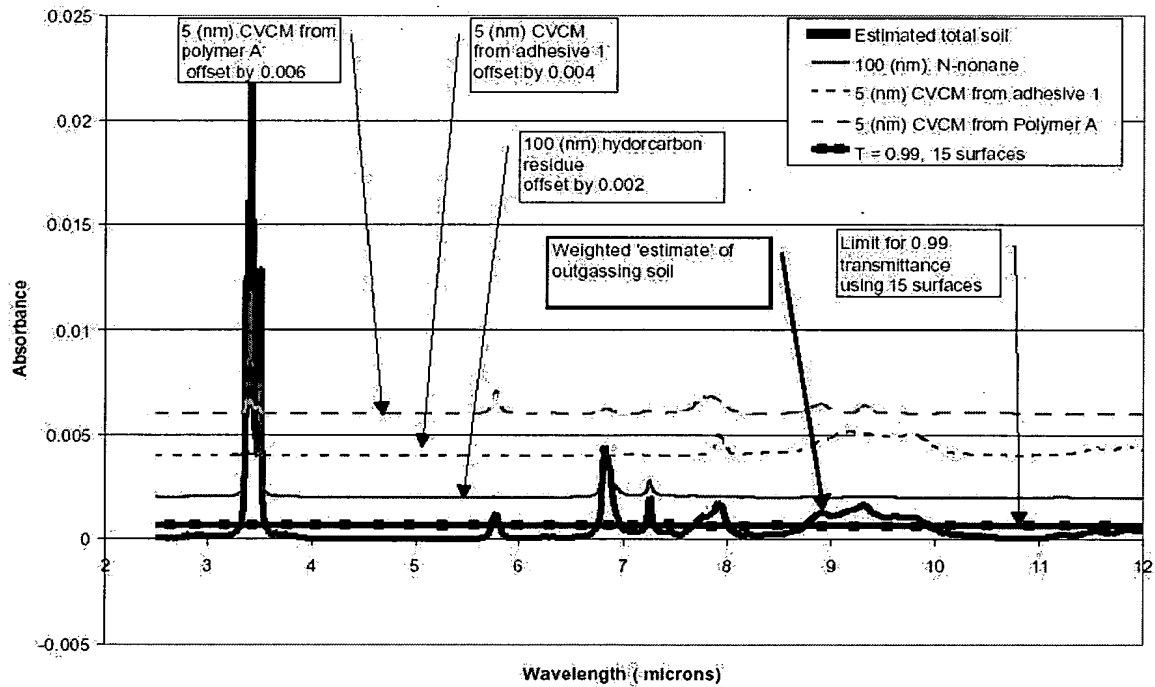


FIG. 16

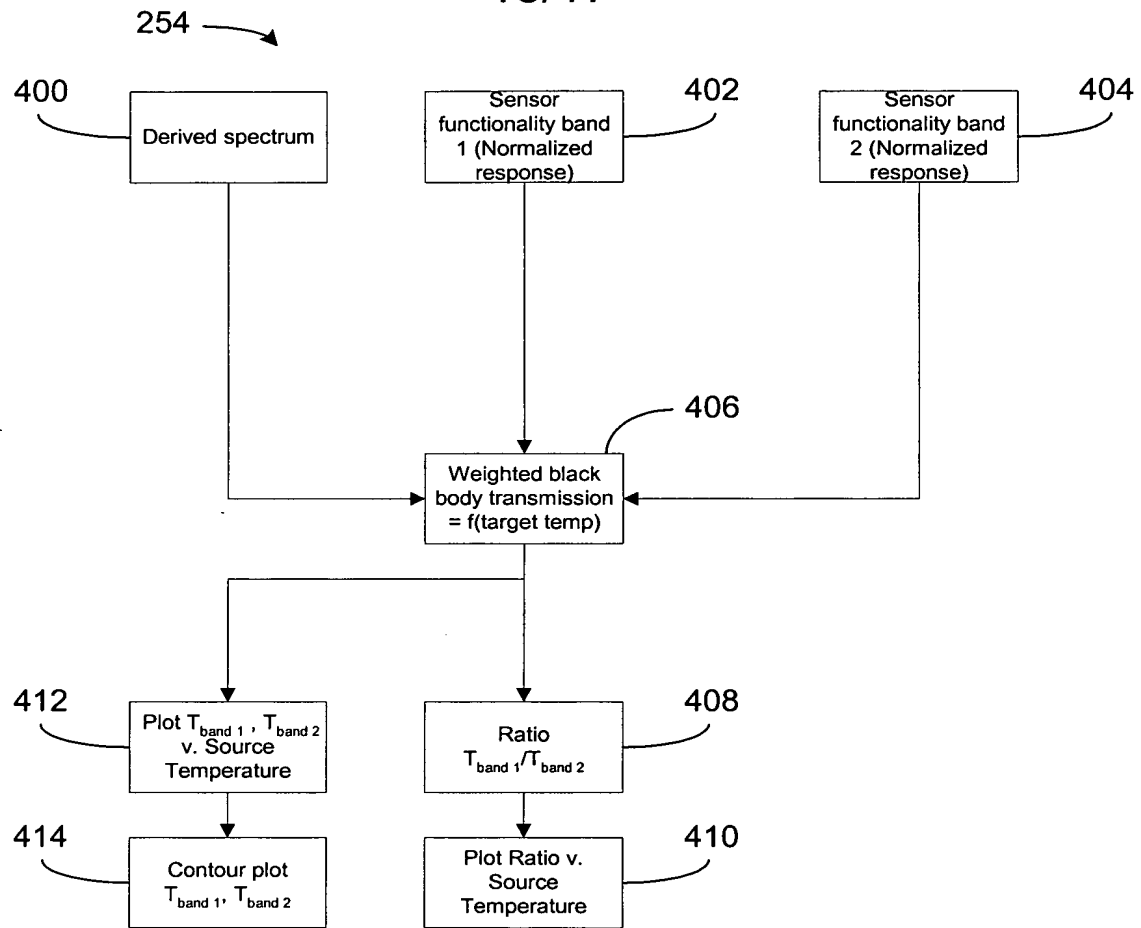


FIG. 17

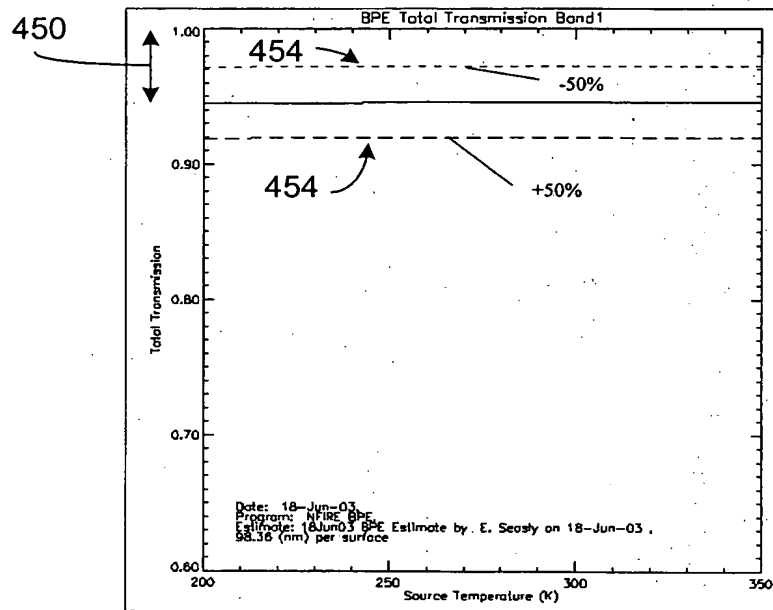


FIG. 18A

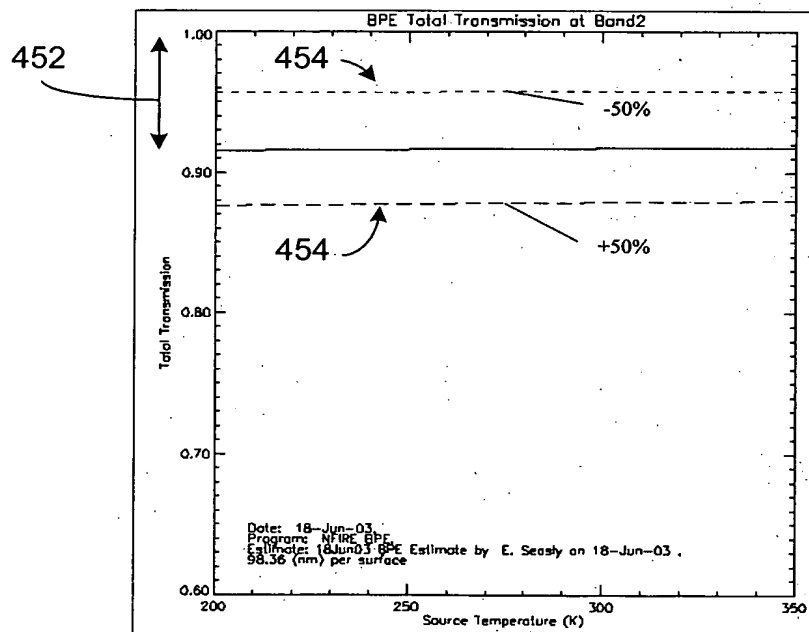


FIG. 18B



## Band 1 Transmittance

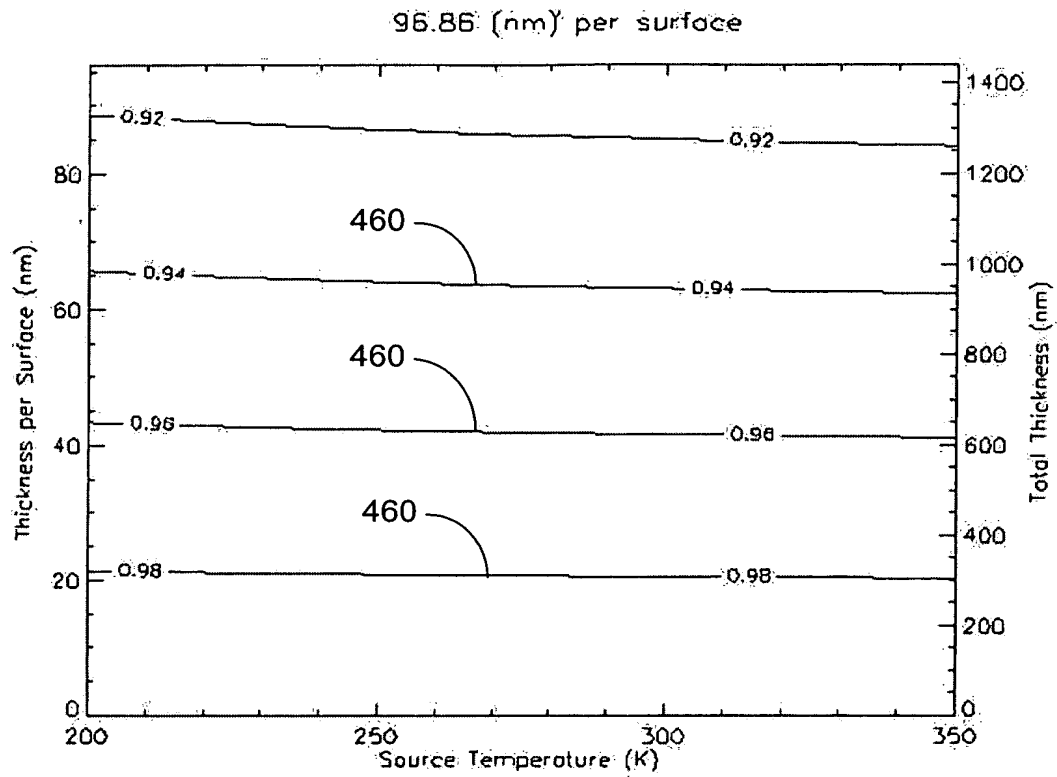


FIG. 18C

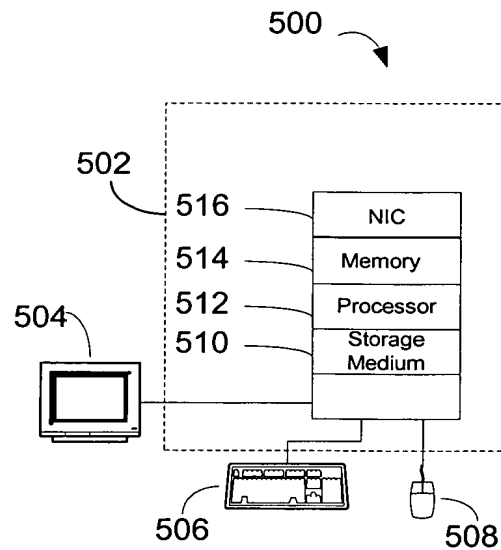


FIG. 19